Assignment 13(Determine whether cycle exist or not)

#include <stdio.h>

#include<stdlib.h>

#include<string.h>

#define MAX\_COURSES 50

#define MAX\_NAME\_LEN 10

int graph[MAX\_COURSES][MAX\_COURSES];

int Visited[MAX\_COURSES];

char course\_array[MAX\_COURSES][MAX\_NAME\_LEN];

int INDEX = 0;

int find\_index(char string\_array[][MAX\_NAME\_LEN], char \*str, int num);

int find\_cycle(int init\_node, int curr\_node, int graph[][MAX\_COURSES],

int num\_nodes);

int main()

{

int i, j, num\_courses, dep\_count, ind1, ind2, lines;

char str[MAX\_NAME\_LEN];

for(i = 0; i < MAX\_COURSES; i++){

strcpy(course\_array[i], "");

for(j = 0; j < MAX\_COURSES; j++)

graph[i][j] = 0;

}

/\* scanf("%d", &num\_courses); \*/

/\* for(i = 0; i < num\_courses; i++){

scanf("%s", str);

strcpy(course\_array[i], str);

} \*/

scanf("%d", &lines);

for(i = 0; i < lines; i++){

scanf("%s", str);

ind1 = find\_index(course\_array, str, MAX\_COURSES);

if(ind1 == -1){

strcpy(course\_array[INDEX], str);

ind1 = INDEX;

INDEX++;

}

scanf("%d", &dep\_count);

for(j = 0; j < dep\_count; j++){

scanf("%s", str);

ind2 = find\_index(course\_array, str, MAX\_COURSES);

if(ind2 == -1){

strcpy(course\_array[INDEX], str);

ind2 = INDEX;

INDEX++;

}

graph[ind2][ind1] = 1;

}

}

for(i = 0; i < INDEX; i++){

if(find\_cycle(i, i, graph, MAX\_COURSES)){

printf("NO\n");

return 0;

}

}

printf("YES\n");

return 0;

}

int find\_index(char string\_array[][MAX\_NAME\_LEN], char \*str, int num){

int i;

for(i = 0; i < num; i++)

if(strcmp(string\_array[i], str) == 0){

return i;

}

return -1;

}

int find\_cycle(int init\_node, int curr\_node, int graph[][MAX\_COURSES],

int num\_nodes){

int j;

for(j = 0; j < num\_nodes; j++){

if(graph[curr\_node][j] == 1){

if((j == init\_node) || find\_cycle(init\_node, j, graph, num\_nodes))

return 1;

}

}

return 0;

}